

# Attitudes toward gifted education: Retrospective and prospective update

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## **Abstract**

Aiming to assess attitudes toward gifted education (ATGE), the author and his graduate students created in the 1980s an attitude survey named *Opinions toward Gifted Education (OGE)*; it soon became the researchers' instrument of choice, and has remained so since. But, a recent re-examination of that instrument by this author has revealed major psychometric weaknesses. Consequently, he proposes a program of empirical studies that would lead to a new instrument offering both better effectiveness (reliability and validity) and efficiency. The author also recommends extending that research program to a recently empirically explored related subject, namely the assessment of attitudes toward academic acceleration. A second research program, also conducted by the author and his graduate students in the 1980s, aimed to identify the best causal sources of individual differences in ATGE. It led to two seminal studies: (a) a comprehensive literature review of analysed predictors, followed by (b) an empirical verification of the predictive power of ten of the most 'promising' variables. These two studies have not been replicated since; yet, the field of gifted education would definitely benefit from their replication.

Keywords: attitudes, gifted education, psychometrics, attitude predictors, OGE questionnaire

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We can properly cover the field of research on attitudes through four general questions that apply to any target construct, be it a person, an object, or an abstract concept (Pratkanis, Breckler, and Greenwald, 1989).

1. What attitude(s) do people hold about a particular target construct?
2. How can we explain individual differences in the direction (+/-) and strength of these attitudes?
3. To what extent do specific attitudes predict associated behavior?
4. To what extent can we modify people's attitudes, and consequently associated behaviors?

The bulk of the research on attitudes toward gifted education (hereafter called ATGE) has addressed the first two questions, the same two questions I chose to examine at the beginning of the 1980s when I conducted my first research program in that field. Answering the first question led to the construction of a series of opinionnaires (Gagné, 1983; Gagné and Nadeau, 1985; Nadeau, 1984), culminating in a widely disseminated 34-item version called *Opinions about the Gifted and their Education* (OGE; Gagné, 1991). That opinionnaire has resisted the test of time surprisingly well; I am not aware of any current competing instrument. Dozens of studies, most of them dissertations, have adopted it as their data collection instrument. Just in the past 5 years, I answered no less than 40 requests to use the OGE from 21 different countries; they implied translating the instrument in at least ten languages, excluding French and English.

I later supervised another set of studies that focused on the second question. It first produced an extensive review of the literature on predictors of ATGE (Bégin, 1988; Bégin and Gagné, 1994a), followed by an empirical test of a selected set of promising predictors (Bégin and Gagné, 1994b). That work remains to this day the reference in the field. Among others, Jung (2014) recently stated: "Bégin and Gagné (1994a) appear to have undertaken one of the most comprehensive reviews of the literature on the topic (...) The research of Bégin and Gagné (1994b) is notable for its simultaneous assessment of a comparatively large number of attitude predictors" (pp. 247-248).

How has the topic evolved since the publication of this series of studies more than two decades ago, and what do these studies suggest in terms of future research orientations? I have divided this analysis into three parts. The first two parts focus on Question 1, namely the measurement of ATGE. In Part A, I paint a retrospective look at some relevant studies, with special attention given to the OGE; in Part B, I propose a major research program to improve significantly our measure of a general ATGE. The shorter Part C will follow the same pattern with respect to the second question, namely the predictors of ATGE.

## Question 1: Retrospective look

The Gagné-Nadeau research program began with a search for an existing psychometrically reliable and valid opinionnaire. Unfortunately, after examining fifteen existing instruments, none were found that met our methodological requirements (Gagné and

Nadeau, 1985; Nadeau, 1984); it left little choice but to start from scratch. The field of gifted education lends itself to hundreds, if not thousands of beliefs. Any of the dozen handbooks published over the past two decades offers countless statements that represent potential beliefs to be assessed, either more general ones (e.g., the rights of the gifted, the fear of elitism, their social value) or more specific ones (e.g., personal characteristics, identification procedures, enrichment modalities, homogeneous grouping, accelerative measures). To select a relevant pool of beliefs among thousands of statements filling professional handbooks, we kept in mind three key questions: (a) Since a comprehensive coverage is impossible, which beliefs will best *sample* a general attitude, either positive or negative, toward our field; (b) Are there more specific or thematic attitude objects that could enhance our understanding of people's attitudes toward our field; (c) Are the identified beliefs important enough to justify examining people's responses to each of them?

An initial bank of 145 statements was brought down to a pool of 90 items (Gagné and Nadeau, 1985), which we grouped under twelve general themes (see Table 1); judges helped pinpoint 30 of them "considered to be the most representative of each subscale" (Gagné, 1983, p. 116). We then transformed that pool into two 60-item forms (A and B), each with 30 common items and 30 specific ones; the common items aimed to facilitate comparisons between the two forms. The 90 statements are listed in Appendix A, along

**Table 1:**  
A priori thematic groupings of item pool

Name	N (+/-)	Description
A. Social value	7 (7/0)	Gifted education as profitable investment for society's future.
B. Objections of principle	9 (0/9)	Elitism; unfair to other children; preparing a dominant class.
C. Rights of the gifted	8 (6/2)	Same rights as other children vs. less priority than others.
D. Status of services	4 (2/2)	Special services available (or not) in local schools.
E. (No) need for support	9 (2/7)	Recognition (or not) of their special educational needs.
F. Problems, special needs	12 (10/2)	Boredom; loss of motivation; laziness; dropping out.
G. Characteristics	11 (7/4)	Common stereotypical traits.
H. Acceleration	8 (3/5)	Arguments (mostly against) grade skipping.
I. Enrichment	4 (3/1)	About curriculum enrichment.
J. Homogeneous grouping	8 (4/4)	Positive/negative impacts of grouping.
K. Impact of interventions	5 (2/3)	Increased motivation; lost friendships; egotistic.
L. Envy	5 (3/2)	From peers and teachers.
<b>Total:</b>	<b>90 (49/41)</b>	

Note: +/- : direction of items with respect to a generally positive ATGE.

with their respective thematic group and their placement in Forms A and/or B. Appendix B replaces the items within their thematic group, identifies the content of successive experimental forms, and gives various item-level statistical details. We were confident that the breadth of coverage ensured high content validity. The data collection included a total of 339 participants, both parents and teachers, distributed about equally between the two forms and the two target groups (Gagné and Nadeau, 1985).

The general question concerning the nature of ATGE lent itself to two more specific questions. First, assuming the existence of a general ATGE, which specific beliefs best convey that general attitude? Second, can we identify more specific attitudes, sufficiently distinct to justify their parallel assessment?

### **The beliefs anchoring a general attitude**

We were already convinced that thanks to the breadth of coverage of the item pool an average score for the 60 items of Forms A and B constituted a reliable and valid general attitude index. But these averages said nothing about the beliefs assumed to compose the core of that general attitude. We judged that we would find them in the key components extracted through factor analysis. We computed principal component analyses separately for each form and for the teacher and parent samples; they yielded five factors for Form A and six for Form B (Gagné and Nadeau, 1985). A first factor emerged in both forms with similar common items, thus giving it more strength. Represented by high loading *positively* worded items (see A2, C68, E89, H22 in Appendix B, column 6), we labelled it 'support for special services.' A second factor also appeared in both forms, represented mostly by *negatively* worded items (see B72, C8, E12, K31 in appendix B, column 7); we labelled it 'Objections to special services.' Parallel analyses (Gagné and Nadeau, 1985) revealed that these two factors were not as independent as our statistical technique implied; indeed, a few items had significant loadings on both of them (e.g., 6C and 35C in Form A; 2A, 4B, 10D, 11E, and 73B in Form B; see Gagné and Nadeau, 1985, Table 3). We hypothesized that these two factors were in fact targeting a single general attitude that expressed itself differently according to item wording: one focused on positive support for special services, whereas the other focused on the rejection of common objections to them. McCoach and Siegle (2007) observed that OGE scores made from items associated with each of these two factors (Sections 1 and 2) had a correlation of  $-.53$ . Other research (e.g., Hazlett-Stevens, Ullman, and Craske, 2004) has confirmed that the positive or negative wording of items can create a false dichotomy when in fact the items belong to the same construct.

In a nutshell, these two major factors revealed that what influences most individual ATGE differences is the degree of agreement (or disagreement) with basic *ideological* considerations related to educational investments. They include the rights of gifted children as opposed to those of other students, mostly from disadvantaged groups, the recognition (or not) of special enrichment needs, the boredom they do (or do not) suffer because of the slow pace of teaching in regular classrooms, their value (or not) as a social

and economic resource, and so forth. This is in essence the message conveyed by the data we collected.

### Identifying more specific attitudes

The twelve a priori thematic groupings created at the outset were an attempt to identify more specific group differences in attitudes within the universe of beliefs toward gifted education. Would our statistical analyses confirm that theoretical structure? Two separate series of analyses unfortunately informed its construct validity.

**Descriptive first step.** An initial analysis of two item-level correlation matrices (forms A and B) revealed rapidly that 23 items, mostly placed in groups G-Characteristics and L-Envy (see Appendix B, column 4) had low correlations among themselves (within their subgroup), as well as with the other items and the total score (Gagné, 1983). These observations led to the identification of two shorter forms, each having 46 items that included 25 common items (see Appendix B). They also led to the reorganisation of the remaining 67 items into 8 slightly different thematic subgroups. Table 2 describes these eight subgroups, gives their means for both forms, as well as the correlations of the subgroup scores with the total scores; most of these correlations exceeded .70 in both forms, indicating that the eight themes had little specificity in content. It strongly suggested that our conceptual groupings, even in their revised shorter versions, would probably not survive more advanced statistical analyses. One significant exception to that pattern stood out, namely the participants' reactions to accelerative measures. In that case, although the correlations remained moderate, they did not exceed .50. In other words, favouring (or not) the rights and special educational needs of gifted students did not imply an automatic endorsement of academic acceleration.

**Table 2:**  
Means and correlations for eight revised hypothetical dimensions

Name	N (C-A-B)	Mean A	Mean B	r tot A	r tot B
A. Social value	7 (2-4-5)	3.49	3.74	0.73	0.66
B. Objections of principle	10 (4-8-6)	2.70	2.53	-0.78	-0.81
C. Rights of the gifted	6 (2-4-4)	4.00	4.07	0.77	0.82
E/D. No need for support	8 (3-6-5)	2.75	2.23	-0.77	-0.84
F/E. Problems and needs	16 (6-10-12)	3.58	3.67	0.88	0.84
F. Enrichment	6 (3-5-4)	3.98	3.80	0.65	0.69
G. Special classes	7 (3-4-6)	2.94	2.98	0.73	0.66
H. Acceleration	7 (2-5-4)	2.91	2.73	0.45	0.28
Totals	67 (25-46-46)	3.43	3.54	---	---

Adapted from Gagné, 1983, Tables 2 and 3, pp. 118-119. Column 2: number of items (Common, Form A, Form B); they are identified in Appendix B, column 4. Columns 5 and 6 show the correlations between subgroup means and the average of the 46 items.

**Factor analyses as second step.** Gagné and Nadeau (1985) summarized as follows the results of the extensive factor analyses computed on the data from the two initial 60-item instruments: “Six distinct themes seem to emerge from this double factor analysis of our two parallel forms: Support of special services, Objections to special services, Opposition to acceleration, Perceptions of rejection and isolation, Social value, and Opposition to homogeneous grouping” (p. 161). The labels attributed do look like those of six of the initial conceptual groupings, namely E-Support, B-Objections, H-Acceleration, L-Envy, A-Social value, and J-Grouping (see Appendix B). But a closer inspection of the items with significant loadings reveals that they all belong to different conceptual subgroups, thus confirming the artificiality of that conceptual structure. For instance, only four of the 10 highest loading items for the second factor (Objections) came from the expected subgroup B (5, 34, 51, 73); the others belonged to subgroups C (8 and 44), D (10), E (12 and 48), and K (31).

Other researchers also failed to reproduce our thematic groupings. For instance, Tallent-Runnels, Tirri, and Adams (2000) used the 60-item Form A to compare the attitudes of Finnish and American teachers. They rapidly noted the overlap between the thematic groupings: “In this case, the latent variables representing the various dimensions of attitudes toward gifted education are naturally all highly correlated” (p. 105). It led them to complete their factor analysis with Oblimin rotations (Harman, 1976), and then to choose an 18-factor solution that explained 62% of the total variance, as opposed to 33% in our case (Gagné and Nadeau, 1985). Yet, even with so many small groups of high loading items they could not reproduce our a priori groupings; each small group was composed of items from different themes. In a follow-up study using a third cultural group (Hong Kong), Tirri, Tallent-Runnels, Adams, Yuen, and Lau (2002) obtained very similar results with their 16-factor oblique solution. In summary, it appears quite clear that individual ATGE differences express themselves in a similar way through a large diversity of beliefs, as long as they concern matters of principle or socio-educational ideology.

**The OGE opinionnaire.** We used the factor analytic results to create an opinionnaire that would reflect the six themes identified; it became the 34-item OGE instrument (Nadeau, 1984; Gagné, 1991; see also Appendix B, column 5). The six sections are labelled as follows: A-Needs and support (8 items); B-Resistance to objections (10); C-Social value (4); D-Rejection (3); E-Ability grouping (4); F-Acceleration (5). The guidelines suggest computing seven average scores, one for each section plus a total score. The descriptive document (Gagné, 1991) presented no psychometric information on that specific instrument. I decided to re-examine the steps leading to its creation, and discovered enough weaknesses to question its psychometric qualities.

First, we did not collect any empirical data with that ‘new’ instrument. In fact, we did not even use the existing database to assess some basic psychometric qualities for this new item selection and reorganization, for instance content-sampling homogeneity (alpha coefficient), or correlations between subgroup scores. Second, we created three sections (C-D-E) that were not only based on very fragile factorial components, but also comprised too few items to expect that their average scores would achieve any minimal level of homogeneity. Third, we presented the first two sections as distinct, although we had questioned that distinctness and alluded to a strong overlap hidden behind the posi-

tive/negative wording of items. Third, we proposed the total score as an index of a general attitude, although we already knew that the average of the first two sections pinpointed with better accuracy the core beliefs of that general attitude. Finally, even the section on academic acceleration probably lacks enough items to offer a reliable index for that specific attitude. Indeed, McCoach and Siegle (2007) used four of the five items from that section and obtained a (low) alpha of .71. We could expect the first two sections to reach easily alphas well above .80, since these same authors attained values of .76 and .80 respectively by using just 5 and 6 items respectively from the first, and more stable, two sections.

McCoach and Siegle (2007) indirectly confirmed the above observations; they could not obtain a six-factor solution with the OGE. They came out with three components: positive general attitude, negative general attitude (elitism), and acceleration. Moreover, as mentioned earlier, the first two subscales were correlated at  $-.53$ , suggesting a strong content overlap, albeit in opposite directions. In short, that retrospective analysis led to a clear decision: put the OGE out of circulation as soon as possible and replace it with a new proposal that I will describe in Part B.

### **The special case of accelerative enrichment**

The only two factors extracted that we found to be related to the thematic groupings targeted two controversial educational interventions: homogeneous grouping (theme J) and academic acceleration (theme H). I am not aware of any attempts to assess attitudes toward the homogeneous grouping of academically talented students, but the theme of academic acceleration has generated some research activity during this new millennium. Three recent studies are worthy of mention since they propose specific opinionnaires for that controversial construct. In the first study, Hoogeveen, van Hell, and Verhoeven (2005) constructed a 31-item opinionnaire to assess the beliefs of 334 Dutch high school teachers on academic acceleration. They obtained an excellent alpha coefficient of .92 for their total score. A factor analysis of the instrument produced four subgroups comprising 18 of the 31 items: social isolation (5 items, alpha .79), social competence (4 items, alpha .76), motivation and achievement (4 items, alpha .75), and emotional problems (5 items, alpha .80). The first factor's explanatory power (34%) exceeded by far that of the three other factors combined, suggesting that this set of beliefs could constitute the core of a general attitude toward that administrative intervention.

In the second study, Siegle, Wilson, and Little (2013) created two parallel instruments, which they administered to a group of 152 educators attending a summer conference on gifted education. The first instrument had 31 items and targeted the respondents' concerns about the impact of accelerative measures; its content definitely overlaps the Hoogeveen et al. (2005) opinionnaire. According to its authors, the second instrument inventoried a series of beliefs about acceleration; but, in my view, some items did not assess attitudes (e.g., 'I am qualified to recognize students who are good candidates for acceleration,' 'parents are hesitant to support acceleration,' 'it won't work in my school district'), while many others directly overlapped the first instrument (e.g., 'students will

have difficulty keeping up with the curriculum,’ ‘they feel pressure to excel,’ ‘they miss their old friends’). They tried unsuccessfully to identify distinct concern areas, concluding: “We expected the 31 concern statements to cluster into the following categories – emotional, social, academic, age, and extracurricular. However, common factor analysis with a oblimin rotation did not produce a meaningful factor structure” (p. 35). They opted instead for a descriptive analysis of their data at the item level. They did not attempt to create a short measure of a general attitude toward acceleration, nor did they include the two instruments in their factor analysis.

In the third study, Westphal, Vock, and Stubbe (2017) focused on one specific accelerative modality: grade skipping (GS). They created two distinct instruments. The first one, comprising 10 items (alpha .89), was called ‘acceptance’ [of GS]; the second one, with 17 items, targeted beliefs about the impact of GS on students. A factor analysis produced three distinct scales: social integration (8 items, alpha .86), academic impact (5 items, alpha .71), and motivational impact (3 items, alpha .80). These scales definitely overlap those in Hoogeveen et al.’s (2005) study. The four scales were moderately correlated, with academic impact somewhat an outlier.

These three studies offer more than enough material to update an item pool on the subject of academic acceleration. Some inconclusive results in these authors’ attempts to subdivide the theme even further suggest that there is still ample room for additional efforts to better assess these specific attitudes psychometrically, among them the creation of a short, yet reliable and valid general attitude opinionnaire about acceleration.

## Question 1: Prospective look

Our partial survey of past research on the assessment of ATGE suggests that we have barely scratched the surface of that knowledge area, and that multiple research avenues remain to better measure these attitudes. But, in order to progress with minimal wasted efforts, we need to keep in mind Gagné and Bégin’s (1994a) methodological diagnosis of the weaknesses they observed when they reviewed the literature. Of the four main weaknesses they mentioned, the first and foremost was the lack of a good opinionnaire to assess a general attitude. The major drawbacks I identified in the OGE have left us without such an instrument. Consequently, replacing that opinionnaire should be our first order of business for the coming years. But what would be a good opinionnaire? It would possess both high *effectiveness* and high *efficiency*.

### About effectiveness and efficiency

The concept of efficiency is the easiest one to define; it means attaining an excellent result with a minimum number of items, thus less time expenditure by the participants. But keep in mind that efficiency without effectiveness is useless; the key construct remains effectiveness, and the effectiveness of psychometric instruments depends on two attributes: reliability and validity.



**Effective reliability.** Reliability refers to “the consistency of scores obtained by the same persons when they are re-examined with the same test on different occasions, or with different sets of equivalent items, or under variable examining conditions” (Anastasi and Urbina, 1997, p. 84). We try to identify sources and levels of measurement error, “whereby we can predict the range of fluctuation likely to occur in a single individual’s score as a result of irrelevant or unknown chance factors” (ibidem, p. 84). Two main sources of error affect opinionnaires. The first one, called *content sampling* (CS) error, influences the scores through the degree of homogeneity in item selection. We commonly estimate its size with alpha coefficients; they give us directly, without the usual squaring of correlations ( $r^2$ ), the amount of variance unaffected by the CS error.

The second one, *time sampling* (TS) error, affects the scores through short-term (daily, weekly) unpredictable fluctuations in people’s responses to the same items. We estimate that source of error by comparing repeated assessments of the same persons on the same instrument. Whereas the measure of CS errors is technically very easy, asking participants to complete an opinionnaire twice and keeping track of their two sets of responses is a much more cumbersome procedure; this is why we almost never encounter estimates of TS error in research on opinionnaires. Yet the level of TS error is potentially as important as the level of CS error. Tourangeau, Rips, and Rasinski (2000) affirmed: “responses to attitude questions are inconsistent over time and sensitive to question order and context” (p. 169). As an example of “question order and context,” Nadeau used the different placement of the common items in Forms A and B to assess the impact of item position; she observed a significant positive correlation (.40,  $p < .05$ ) between the item’s position and the use of scale choices (5-point); it indicated a tendency to use the extreme choices 1 and 5 less frequently toward the end of the opinionnaire (Nadeau, 1984).

But here is an important point: to estimate the percentage of remaining true variance in scores when *all* sources of error have been accounted for, we need to *add* the impact of all error sources (Anastasi and Urbina, 1997). For instance, a CS alpha coefficient of .80 and a TS coefficient of .80 will produce a true variance estimate of only .60, a value I personally consider unacceptable. So, what does ‘highly reliable’ mean operationally? Because we usually lack estimates for TS error levels, we should target minimum alpha coefficients of at least .85, and preferably .90. That seemingly high threshold can be reached rather easily with good item selection. For instance, Nadeau (1984) was able to create indices for the first two factors of Forms A and B with alpha coefficients of at least .85 using 5 to 8 items, even reaching .90 with approximately a dozen items in these four situations. Other researchers mentioned above have also obtained similar high values. These high values are important: less error means stronger relationships between independent and dependent variables.

**Effective validity.** The validity of an opinionnaire “concerns *what* [it] measures and *how well* it does so” (Anastasi and Urbina, 1997, p. 113). It takes many forms: content-related, construct-related, concurrent, ecological, predictive, etc. For the purposes of this text, only two are worth mentioning. Ensuring good *content* validity, as we did with our initial item pool, starts the psychometric process on the right foot. Then, we have to verify the *construct* validity of any index we will create. We did just that when we used multiple factor analyses to pinpoint the nature of the core beliefs that make up people’s

general ATGE. Other techniques are available, but their discussion exceeds the needs of the present text. As a last note, remember that high reliability is a strict precondition for good validity; it is useless to attempt validating an unreliable instrument. So, here is the methodological sequence to follow: high reliability first, then high validity, and only then try to achieve high efficiency.

### **In search of an efficient general G/T attitude index**

Researchers are constantly on the lookout for published instruments that will offer good measures for the independent or dependent variables included in their research design. To minimize time investment from their participants, they will typically look for scales and opinionnaires having very few items; unfortunately, many (most?) of these instruments have reliability indices in the low .70s. They tolerate these minimal results, because if they were too strict it would force them to forgo the use of a particular variable for lack of an assessment tool of high quality. Efficiency too often trumps effectiveness; said differently, 'psychometric homeostasis' is too often the rule! Yet, as I tried to demonstrate above, high levels of reliability and validity would help maximize the significance of comparative analyses. In sum, replacing the defective OGE with a short general ATGE opinionnaire offering high reliability and good construct validity would constitute a definite progress for this field of research. But are we condemned to start again from scratch to reach that goal? Fortunately no!

When I reread Ms. Nadeau's dissertation, I discovered that she had proposed a 10-item opinionnaire to assess a general attitude (see Appendix C). Using as her database a correlation matrix between all 60 items, separately for Forms A and B, she applied to these two matrices the *Purdue Item Analysis System* (PIAS), a technique that chooses first the item with the highest average correlation within that group, and then adds items with progressively lower averages, computing after each addition an *alpha* coefficient that grows initially rapidly, and then progressively levels off (see Nadeau, 1984). Researchers need only determine in advance their minimally acceptable reliability threshold, and then see if the technique produces an efficient solution. Nadeau (1984) reached the .90 alpha threshold with 12 items and 7 items respectively for Forms A and B, and then picked the items she judged most representative, taking care to balance positive and negative wordings. Unfortunately, Ms. Nadeau conducted no psychometric analyses with that new instrument, for example a new PIAS analysis, or by computing mean scores for this instrument from our collected data, and then correlating them with the average scores from the 60 items, etc. So, its effectiveness remains unknown. Although it would be possible to just test this 10-item proposal empirically, it seemed to me better to create a larger item pool from which the final instrument would emerge. I first noted that nine of her items appeared in the OGE's first two sections; why not include them in that new pool? I also identified from Ms. Nadeau's analyses five additional items that had been singled out by her PIAS analyses (see Appendix C). Note that this pool of 24 candidate items spreads over a majority of the initial thematic groupings, confirming again the

artificiality of that structure: A (items 2 and 45), B (5, 34, 51, 72, 73), C (6, 8, 44, 68), D (10, 75), E (11, 12, 39, 48, 89), F (15, 43, 70), H (22), J (83), and K (31).

These 24 items, almost equally distributed between positive ( $n = 11$ ) and negative ( $n = 13$ ) formulations, would become the experimental version of a new general attitude opinionnaire. It would use the same 5-point Likert-type scale as the OGE. It could be called – in all modesty! – the *General Attitude toward the Gifted, their Needs, and their Education* (GAGNE x-1) opinionnaire. I suggest in Appendix C an initial sequence for that experimental (thus the x-1) instrument. The selection process would begin with multiple data collections, using large samples that offer both diversity of perspective (professional, cultural, etc.) and replicative power. It would be a perfect occasion to administer the GAGNE x-1 twice to some subgroups and compute as yet unavailable estimates for the time sampling (TS) error. These databases would be submitted to a series of descriptive and statistical analyses, including at its heart a selection process similar to the PIAS technique described above. The researchers would aim to maintain a combined error level ( $CS + TS$ ) inferior to 20%. In the meantime, researchers who would like to still use the OGE should reduce it to the 18 items of the first two sections, and compute only a general ATGE score. If they desire a more detailed instrument, they could choose between the two 45-item opinionnaires described in Appendix B.

### Creating other thematic opinionnaires

Although Gagné and Nadeau's study, as well as many ulterior ones, have had little success in their efforts to partition the universe of ATGE beliefs into a diversity of somewhat independent attitudes, at least two themes, homogeneous grouping and academic acceleration, have shown promise for separate attitude assessment. In the case of academic acceleration, I summarized three very promising studies, while observing that they had not produced a valid and efficient general attitude measure for that specific area. Westphal et al.'s (2017) 10-item scale called 'Acceptance' ( $\alpha = .89$ ) could be close to such an instrument, but I would argue for an approach similar to the one proposed above for the GAGNE x-1 opinionnaire. It implies the identification of a broad pool of potential items from which researchers would create an experimental instrument with at least 20 items. They would then just follow the methodological steps proposed above in the case of the GAGNE x-1 opinionnaire. One particularly interesting question to verify is my hunch that Hooegeven et al.'s (2005) 'Social isolation' factor might form the core construct of a general attitude toward accelerative enrichment. The existing literature (e.g., Assouline et al., 2015) seems to support that hypothesis. It might also be worth some effort to explore the possibility of a more complex instrument based on Hooegeven et al.'s (2005) four thematic subgroups, as well as Westphal et al.'s (2017) similar subgroups associated with grade skipping. But it would be important to check that they do not overlap too much with the general attitude measure. Finally, researchers could modify the obtained general opinionnaire to verify if it works equally well for different accelerative modalities.

Gagné and Nadeau's (1985) factor analyses revealed that people might express somewhat distinct attitudes toward homogeneous grouping. That result led to the inclusion of such a subscale in the OGE. It might be interesting to explore that avenue further by creating and testing a pool of items inspired by those we created for that particular thematic grouping (theme J in Table 1). The procedure would copy the above suggestions.

## Question 2: Explaining ATGE individual differences

Recall the subject of Question 2: How can we explain, thus predict, individual ATGE differences?

### Retrospective look

Bégin and Gagné decided, as a first step to the preparation of a socio-demographic questionnaire, to extract from the existing literature all the predictors already examined empirically. They located 35 studies, most of them spanning the 1970s and 1980s, from which they identified 48 different predictive variables, and obtained 148 statistical results, with 81 (55%) showing statistical significance. The fact that non-significant results balanced most significant ones led them to conclude as follows.

“None of the 48 variables examined in these 35 studies has been shown to be a systematic and substantial predictor. We might make an exception for the weak but recurring link between attitude and the respondents' abilities, as well as their sex, their education level, their occupation as teacher, and their degree of contact with gifted children” (Bégin and Gagné, 1994a p. 169).

To account for such inconclusive results, they identified four major methodological problem areas: “(a) the diversity of the attitude questionnaires used; (b) the size, diversity, and non-representativeness of the samples used; (c) the small number of predictors introduced, as well as the diversity in their operationalization; (d) inadequacies in statistical procedures” (p. 161).

Bégin and Gagné then tried to overcome these weaknesses with their own empirical study. They created a demographic questionnaire composed of ten predictors shown from the literature review to offer some hope of explanatory power. They administered it along with Forms A and B of the 60-item opinionnaire created by Gagné and Nadeau (1985). A factor analysis of the demographic questionnaire produced two main factors. The first one, called ‘socioeconomic status,’ explained 12% of the variance in the opinionnaire total scores, whereas the second one, labelled ‘contact with giftedness,’ added another 10%, for a total of 22%. Bégin and Gagné explained their better results by their efforts to “follow more closely than any previous [study] the four criteria proposed by Bégin and Gagné (1994) in their literature review” (1994b, p. 83).

What has happened in that area since the publication of these two groundbreaking studies? My search brought up very little new information. In the case of the literature re-

view, I found no attempt to update it with the numerous additions published since. With respect to our empirical test of ten distinct predictors, I found no attempt to replicate it, although the article gave all the necessary information to do so. Instead, other researchers just tried to use one or two of the variables found in our literature review, or introduce a new potentially fruitful predictor. For instance, McCoach and Siegle (2007) studied the impact of the researchers' organisational affiliation, called 'the letterhead effect,' as well as three characteristics from Bégin and Gagné's 'contact with giftedness' factor. They also compared special education teachers with regular education ones. The only variable that showed some explanatory power on attitudes was the presence of past training in the field. For his part, Jung (2014) used some of the Bégin and Gagné 'contact with giftedness' variables, and introduced a variable labelled 'power distance orientation,' namely the tendency to "acknowledge a hierarchy among people, and believe that those occupying low power positions should behave respectfully or submissively toward those in higher positions" (p. 248). He factorially created four groups of predictors: a) perceived knowledge of giftedness, b) contact with gifted persons, c) self-perceptions of giftedness, and d) power distance orientation; he mixed these 'predictors' with attitude items by creating two additional groups called 'support for gifted programs' and 'perceptions of elitism' respectively. Jung found that a low power distance orientation was associated with more positive support for gifted education programs, and that its explanatory power exceeded that of the subgroup of four items labelled 'contact with gifted persons.'

Other researchers examined national or cultural/ethnic differences, for instance USA vs. Finland differences (Tallent-Runnels, Tirri, and Adams, 2000), or these two groups with the addition of teachers from Hong Kong (Tirri, Tallent-Runnels, Adams, Yuen, and Lau, 2002). Unfortunately, they did analyse only superficially their potentially very interesting data (see for instance the mean differences in Tables 2 and 3 in Tirri et al.'s study). We could add a few additional studies where no particular effort was made to link together many variables into a structured web of predictors, as Bégin and Gagné (1994b) had done. In summary, if we added to Bégin and Gagné's (1994a) literature review all the predictor studies published since, I believe we would end up with almost identical 'inconclusive conclusions!'

### **Prospective look**

Our partial summary of recent studies shows clearly the main paths for future studies dealing with predictors of ATGE. In the case of the literature review, an update would serve at least two purposes: (a) add to the existing list any new predictors tested during the intervening three decades, and (b) verify if the new publications, including of course our own empirical study (Bégin and Gagné, 1994b), have strengthened the explanatory power of any predictors. Even if researchers found that our initial 'inconclusive conclusions' still hold, that result would be a progress. With respect to our empirical study, multiple replications would help determine to what extent the two factorial components extracted from the 10-item demographic questionnaire have some stability, and, if so, keep explaining as much of the variance in individual ATGE differences. That verifica-

tion could be done even as researchers test other variables. I believe that these suggested avenues of research would constitute not only a worthwhile endeavour but also a priority: replication is the bread and butter of scientific research, even if it brings less glory to march in the footsteps of others.

The items we have found to be at the core of a general attitude (see Appendix C) suggest that expressed opinions, either in favour or against special talent development services, have strong ideological roots. Consider for instance a person who agrees – even mildly – that gifted programs are a mark of privilege (51B) or create elitism (5B), that gifted students are already favoured in schools (12E), that they do *not* waste their time (15F) or get often bored in regular classrooms (70F). All these beliefs convey an impression of general reject for the needs and rights of these special students. It is clear that these opponents have “chosen their side,” that they have focused their sights on the disadvantaged, on those who have not received their just share from society’s riches, on those who should benefit much more from both the school and economic systems. Accusations of elitism toward our field have nothing to do with knowledge about the gifted and their needs; they originate from individuals who defend an extreme egalitarianism, rejecting all attempts to differentiate the curriculum and the administrative organization in order to foster a better actualization of talented students’ high cognitive aptitudes (Benbow and Stanley, 1996; Gardner, 1961; Henry, 1994). Couldn’t we be looking, behind these opposite general attitude scores, at non-reconcilable socio-political ideologies, at the opposition between right and left, between socialism and liberalism? Is it possible that all past studies of predictors – including our own – have missed a key variable, a variable that might reveal itself as the single best predictor of attitude differences, especially between those respondents who express stronger attitudes. And numerous tools are available to do so (e.g., Robinson, Shaver, and Wrightsman, 1999). Moreover, research has shown that this construct, commonly called ‘traditionalism,’ has significant genetic roots (Hatemi et al., 2014).

Here is a last suggestion. Parents or teachers who express opinions close to the average might be the ones more susceptible to react positively to outside change influences; on the other hand, as opinions move away from average expressions, they gain strength and should become more resistant to change (Howe and Krosnick, 2017). Gottfredson (1997) examined the impact of IQ differences on a diversity of real life experiences, including dropping out of school, becoming a chronic recipient of welfare (mothers), living in poverty, and many others. She highlighted the degree of impact by creating ratios between the top and bottom 25%. For their part, the researchers in charge of the long-term follow-up of the first young students identified through the SMPY program adopted quartiles to compare extreme groups (Q4 vs. Q1; see for instance Park, Lubinski, and Benbow, 2008). I would recommend adopting a similar approach to analyse the explanatory power of predictors of attitudes, especially in the case of the “forgotten” variable proposed above.

## Summing up

I believe that the study of aptitudes toward gifted education (ATGE) constitutes an important way to better understand the environment in which we aim to invest our programming energies. But we need to proceed with methodological structure and careful planning in order for our efforts to bear fruit and not be dispersed. Me and my graduate students tried to do so with our two research programs, and their impact indicates that we definitely introduced methodological improvements in both areas. Unfortunately, I realized through this update that the OGE, our main ‘product,’ did not possess the psychometric qualities necessary to serve as the main ATGE data collection instrument. On the other hand, if we want this area of research to progress, we do need an effective and efficient ATGE opinionnaire. I have described in Part B the basic methodological steps to achieve that goal. Unfortunately, since I retired from my professorship over sixteen years ago, I no longer have the means, financial and human, to implement such a research program. I hope that one or more colleagues will find my suggestions interesting enough to take up that project. I would gladly act as an information hub, as well as a methodological consultant to those who would decide to undertake such a program. As for Question 2, I have also proposed clear research directions and ways to implement them.

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## Appendix A

### Item descriptions in the Gagné-Nadeau original opinionnaires

1A	Talent is a rare commodity that we must encourage. (A-41/B-45)
2A	Devoting special funds to the education of gifted children constitutes a profitable investment in the future of our society. (28/57)
3B	Offering special help to the gifted helps perpetuate social inequalities. (9/54)
4B	Special services for the gifted constitute an injustice to other children. (29/22)
5B	Special programs for gifted children have the drawback of creating elitism. (26/8)
6C	Since we invest supplementary funds for children with difficulties, we should do the same for the gifted. (56/13)
7C	It is unfair to deprive gifted children of the enrichment which they need. (14/6)
8C	Children with difficulties have the most need of special educational services. (49/21)
9D	In our schools, it is not always possible for gifted children to fully develop their talents. (5/14)
10D	Our schools are already adequate in meeting the needs of the gifted. (55/53)
11E	Gifted children do not need special educational services. (42/59)
12E	The gifted are already favoured in our schools. (27/46)
13E	Whatever the school program, the gifted will succeed in any case. (60/31)
14F	Because of a lack of appropriate programs for them, the gifted of today may become the dropouts and delinquents of tomorrow. (35/26)
15F	The gifted waste their time in regular classes. (32/20)
16F	If the gifted are not sufficiently motivated in school, they may become lazy. (15/56)
17G	The gifted come mostly from wealthy families. (21/60)
18G	All children are gifted. (51/42)
19G	People are born gifted; you can't become gifted. (11/40)

20H	A greater number of gifted children should be allowed to skip a grade. (38/1)
21H	Most gifted children who skip a grade have difficulties in their social adjustment to a group of older students. (33/39)
22H	Schools should allow gifted students to progress more rapidly. (19/10)
23I	Enriched school programs respond to the needs of gifted children better than skipping a grade. (48/33)
24I	An enriched school program can help gifted children to completely develop their abilities. (44/44)
25J	The best way to meet the needs of the gifted is to put them in special classes. (20/51)
26J	Most teachers do not have the time to give special attention to their gifted students. (2/58)
27J	By separating students into gifted and other groups, we increase the labelling of children as strong-weak, good-less good, etc. (1/24)
28K	Special programs for gifted children make them more motivated to learn. (18/52)
29K	When the gifted are put in special classes, the other children feel devalued. (57/30)
30L	Often, gifted children are rejected because people are envious of them. (43/11)
31K	Gifted children might become vain or egotistical if they are given special attention. (A-3)
32F	The speed of learning in our schools is for too slow for the gifted. (4)
33L	I am sometimes uncomfortable before people I consider to be gifted. (6)
34B	Average children are the major resource of our society, so, they should be the focus of our attention. (7)
35C	We should give special attention to the gifted just as we give special attention to children with difficulties. (8)
36L	Some teachers are jealous of the talents their gifted students possess. (10)
37F	It isn't a compliment to be describes as a 'whiz kid'. (12)
38I	The enrichment tract is a good means with which to meet certain special needs of gifted children. (13)
39E	The gifted need special attention in order to fully develop their talents. (16)
40A	It is less profitable to offer special education to children with difficulties than to gifted children. (17)
41F	Gifted students often disturb other students in the class. (22)
42B	The idea of offering special educational services to gifted children goes against the democratic principles of our society. (23)
43F	Sooner or later, regular school programs may stifle the intellectual curiosity of certain gifted children. (24)
44C	We have a greater moral responsibility to give special help to children with difficulties than to gifted children. (25)

45A	In order to progress, a society must develop the talents of gifted individuals to a maximum. (30)
46G	Gifted children are often unsociable. (31)
47E	The gifted should spend their spare time helping those who progress less rapidly. (34)
48E	It is the parents who have the major responsibility for helping gifted children develop their talents. (36)
49H	It is more damaging for a gifted child to waste time in class than to adapt to skipping a grade. (37)
50C	Equal opportunity in education does not mean having the same program for everyone, but rather programs adapted to the specific needs of each child. (39)
51B	Special educational services for the gifted are a mark of privilege. (40)
52J	Generally, teachers prefer to teach gifted children rather than those with difficulties. (45)
53G	Some children are more gifted than others. (46)
54D	In our schools, it is possible to meet the educational needs of the gifted without investing additional resources. (47)
55K	A child who has been identified as gifted has more difficulty in making friends. (50)
56G	All children could be gifted if they benefited from a favourable environment. (52)
57J	When gifted children are put together in a special class, most adapt badly to the fact they are no longer at the head of the class. (53)
58H	Skipping a grade emphasizes scholastic knowledge too much. (54)
59H	Skipping a grade forces children to progress too rapidly. (58)
60G	There are no G children in our school. (59)
61J	In regular classes, teachers devote more attention to those who learn more slowly than to the gifted. (B-2)
62F	The gifted should not be forced to hear repeated explanations of things they understood the first time. (3)
63F	I would not like to have a gifted child. (4)
64C	It is not right to offer the same education to children who have very different levels of abilities. (5)
65A	The leaders of tomorrow's society will come from the gifted of today. (B-7)
66E	What gifted children most need to learn is a little more humility. (9)
67F	Some teachers feel their authority threatened by gifted children. (12)
68C	The gifted have the right, like all other children, to benefit from a system of education which facilitates the full development of their personality. (15)
69E	If they are gifted, they don't need help. (16)
70F	Gifted children are often bored in school. (17)
71A	A complex technological society needs the talents of gifted persons in order to function well. (18)

72B	There are too few gifted children to justify our offering special educational services to them. (19)
73B	Taxpayers should not have to pay for special education for the minority of children who are gifted. (23)
74G	Gifted children are often the leaders in a group. (25)
75D	The specific educational needs of the gifted are too often ignored in our schools. (27)
76L	I find it unfair that some people are more gifted than others. (28)
77G	To be gifted is to be good in everything. (29)
78K	Gifted children are more motivated when they work with other students of the same ability level. (32)
79I	Enriched school programs emphasize intellectual aspects too much. (34)
80G	Giftedness depends as much on heredity as on the quality of the environment. (35)
81L	I would very much like to be considered a gifted person. (36)
82B	By offering special educational services to the gifted we prepare the future members of a dominant class. (37)
83J	Gifted children should be left in regular classes, since they serve as an intellectual stimulant for the other children. (38)
84A	Gifted persons are a valuable resource for our society. (41)
85J	The gifted learn to adapt to all kinds of people by mixing in regular classes with children with different abilities. (43)
86H	By skipping grades, gifted students miss important ideas (they have “holes” in their knowledge). (47)
87F	Some gifted children may fail certain subjects if they are not sufficiently motivated. (48)
88G	Gifted children represent less than 10% of population. (49)
89E	Our schools should offer special educational services for the gifted. (50)
90H	Children who skip a grade are usually pressured to do so by their parents. (55)

Column 1: Position in item pool, followed by its thematic group code (A to L, see Appendix B).

Common items = 1 to 30; Form A = 31 to 60; Form B = 61 to 90.

Column 2: Item descriptions translated from French; (...) = position in initial 60-item forms.

## Appendix B

### Item data in the various forms of the Gagné-Nadeau giftedness opinionnaires

	Item descriptions	90-item	67-item	N=34	Fact I A - B	Fact II A - B
<b>A – Social value</b>						
1	Talent = rare commodity to encourage	C	A			
2	Talent development = profitable investment	C	A		62 - 57	
40	Investing in G more profitable than Diff.	A	A			
45	Developing Talents is imp for society's progress	A	A	24A	62	
65	Leaders of tomorrow from today's G		B	A	33C	
71	Complex techno society needs G's talents		B	A		
84	G are valuable resource to society		B	A	13C	
<b>B – Objections in principle</b>						
3*	TD services to G perpetuates social inequities	C	B			57 - 29
4*	TD services constitute an injustice	C	B			51 - 45
5*	Talent Development (TD) services create elitism	C	B			49 - xx
34*	Average children should be focus of schools	A	B	27B		45
42*	TD goes against democratic principles	A	B			56
51*	TD services are a mark of privilege	A	B	5B		59
72*	Too few G children to justify TD services		B	----		57
73*	Taxpayers should not pay for TD for the few		B	B	26B	
82*	TD services prepare future dominant class		B	B	25C	
<b>C – Rights of the gifted</b>						
6	Invest for G as we do for children with Diffic(ulties)	C	C	30A	50 - 73	-58
7	Unfair to deprive G from needed enrichment	C	C		52 - 53	
8*	Diffic have most needs for special services	C	B	3B		63 - 55
35	Give special attention to G as we do for Diffic	A	C		46	-42
44*	Greater moral responsibility for Diffic than G	A	B	12B		64
50	Equality does not mean same program for all, but...	A	C		39	-39
64	Not right to give same education to different abilities		B	C		44
68	G have same right to full development as others		B	C		64
<b>D – Status of services</b>						
9	TD of G kids not always possible in our schools	C	E		33 - 71	
10*	Our schools already adequate in TD services	C	D	16B	--- - 59	56 -40
54*	We can provide TD without additional resources	A	D			

75	Needs of G too often ignored in our schools	B	----	14A	45	
<b>E (D) – Need for support</b>						
11*	G children do not need TD	C	D			50 - 49
12*	G children already favoured in our schools	C	----	23B		60 - 47
13*	Whatever the program, G will succeed any-way	C	D			
39	G need special attention to fully develop their T	A	D	15A	44	
47*	G should spend spare time helping slow learners	A	D			41
48*	Parents have main responsibility in TD of their child	A	D	18B		49
66*	What G children need to learn most is humility	B	----			40
69*	If they are G they don't need help	B	D			45
89	Schools should offer TD to their G kids	B	E	1A	72	
<b>F (E) – Problems and special needs</b>						
14	Without TD, G may become drop-outs/delinquents	C	E			
15	G waste their time in regular classrooms	C	E	11A	35 - 66	
16	If not motivated enough, G may become lazy	C	E			
32	Learning speed in school far too slow for G	A	E			
37*	It isn't a compliment to be labelled 'whiz kid'	A	E			
41	G kids often disturb others in classroom	A	E			
43	Regular programs may stifle curiosity of G kids	A	E	32A	46	
62	G should not be forced to hear repeated explanations	B	E			48
63*	I would not like to have a G child	B	E			
67	Some teachers feel their authority threatened by G	B	E	22D		
70	G kids often bored in school	B	E	9A	54	
87	G may fail subjects if not sufficiently motivated	B	E			
<b>G – Characteristics</b>						
17	G come mostly from wealthy families	C	----			
18*	All children are G	C	----			
19	People are born G; you can't become G	C	----			
46*	G kids are often unsociable	A	----			
53	Some kids are more G than others	A	----			
56*	All children could become G with good environment	A	----			
60*	There are no G children in our school	A	----			
74	G kids are often leaders in a group	B	----			
77	To be G is to be good in everything	B	----			
80	G depends as much on H as on environment quality	B	----			

88	G are less than 10% of population	B	----			
<b>H (H) – Acceleration</b>						
20	More G should be allowed to skip a grade	C	H	34F		
21*	Grade skippers have social adjustment problems	C	H	7F		
22	Schools should allow G to progress more rapidly	C	E		72 - 71	
49	More damaging to waste time than adapt to skipping	A	H	8F		
58*	Skipping emphasizes scholastic knowledge too much	A	H			
59*	Skipping forces G kids to progress too rapidly	A	H			
86*	By skipping, G kids miss important content (holes)	B	H	29F		
90*	Skippers are usually pressured to do so by parents	B	H	10F		
<b>I (F) – Enrichment (E)</b>						
23	E programs are better than skipping	C	F			
24	E programs can help completely develop talents	C	F		39 - 47	
38	E programs are good way to meet G special needs	A	F			
79*	E programs emphasize intellectual aspects too much	B	F			
<b>J (G) – Homogeneous grouping (HG)</b>						
25	HG is best way to meet the special needs of G	C	G	2E	64 - 35	
26	Most teachers have no time to offer enrichment	C	E			
27*	HG emphasizes labelling into strong-weak, etc.	C	G	21E		
52	Teachers prefer to teach G than children with Difficulties	A	----			
57*	HG makes G adapt badly to no longer by the top	A	G			
61	Teachers give more attention to Diffic than G	B	----			
83*	G in regular classrooms are intellectual stimulants	B	G	20E		
85*	Regular classes force G kids to mix with all types	B	G			
<b>K – Impact of interventions</b>						
28	TD makes G kids more motivated to learn	C	F		56 - 45	
29*	With HG other children feel devalued	C	G	6E		45 - 49
31*	G may become vain and egotistical if TD (or HG?)	A	F	28B		65
55*	Identified G have more difficulty making friends	A	----	19D		

78	G more motivated when working with other G	B	G		40	
<b>L – Envy</b>						
30	G often rejected because of envy by others	C	----	31D		
33*	I am sometimes uncomfortable with G people	A	----			
36	Some teachers are jealous of their students' T	A	----			
76*	It is unfair that some people are more G than others	B	----			
81	I would like to be considered a G person	B	----	17C		
<b>Totals:</b>		<b>30 30 30</b>	<b>25 21 21</b>			

#### Notes

Column 1: Position of item in the 90-item pool of statements; \* = items worded negatively (with respect to a general positive attitude).

Column 2: Shortened description of item content (Diff = children with difficulties). See Appendix A or Gagné and Nadeau (1985) for complete item descriptions. The category letters within ( ) identify the remaining eight categories after a post-survey clean-up, but before the factor analyses (see Gagné, 1983).

Column 3: Composition of the two 60-item initial opinionnaires: 30 common (C) items, and 30 specific items (forms A and B).

Column 4: Composition of the two revised 46-item opinionnaires based on data analyses of the initial survey (see Gagné, 1983). Note the deletion of two subgroups (Characteristics and Envy), and the merging of two other pairs. The letters identify the placement of items in the new subgroups.

Column 5: Item position and section (A to F) of the 34-item OGE version (Nadeau, 1984; Gagné, 1991). *A: Needs and support. B: Resistance to objections. C: Social value. D: Rejection. E: Ability grouping. F: Acceleration.*

Column 6: Factor loadings of the most interesting items for the first (I) factor in analyses of Forms A and B. High scores on this factor confirm the respondents' view of the gifted as having defensible rights and needs, as well as being a valuable social resource. This factor represents a general positive attitude (see detailed loadings in Gagné and Nadeau, 1985).

Column 7: Factor loadings of the most interesting items for the second (II) factor in analyses of Forms A and B. High scores on this factor confirm the respondents' view of special educational services for the gifted as encouraging elitism, undue privilege, and having less priority than services for average children and those with learning, social, or personal difficulties. This factor represents a general negative attitude (see detailed loadings in Gagné and Nadeau, 1985).



## Appendix C

### Item pool for the experimental GAGNE-x1 opinionnaire

Code	Items proposed by Nadeau (1984)
6C	Since we invest supplementary funds for children with difficulties, we should do the same for the gifted. (56/13)
8C*	Children with difficulties have the most need of special educational services. (49/21)
10D*	Our schools are already adequate in meeting the needs of the gifted. (55/53)
12E*	The gifted are already favoured in our schools. (27/46)
15F	The gifted waste their time in regular classes. (32/20)
43F	Sooner or later, regular school programs may stifle the intellectual curiosity of certain gifted children. (24)
45A	In order to progress, a society must develop the talents of gifted individuals to a maximum. (30)
73B*	Taxpayers should not have to pay for special education for the minority of children who are gifted. (23)
83J*	Gifted children should be left in regular classes, since they serve as an intellectual stimulant for the other children. (38)
89E	Our schools should offer special educational services for the gifted. (50)
	<b>Additional items included in the OGE's sections 1 and 2</b>
5B*	Special programs for gifted children have the drawback of creating elitism. (26/8)
31K*	Gifted children might become vain or egotistical if they are given special attention. (A-3)
34B*	Average children are the major resource of our society, so, they should be the focus of our attention. (7)
39E	The gifted need special attention in order to fully develop their talents. (16)
44C*	We have a greater moral responsibility to give special help to children with difficulties than to gifted children. (25)
48E*	It is the parents who have the major responsibility for helping gifted children develop their talents. (36)
51B*	Special educational services for the gifted are a mark of privilege. (40)
70F	Gifted children are often bored in school. (17)
75D	The specific educational needs of the gifted are too often ignored in our schools. (27)
	<b>Additional choices by Gagné (2017)</b>
2A	Devoting special funds to the education of gifted children constitutes a profitable investment in the future of our society. (28/57)
11E*	Gifted children do not need special educational services. (42/59)
22H	Schools should allow gifted students to progress more rapidly. (19/10)

68C	The gifted have the right, like all other children, to benefit from a system of education which facilitates the full development of their personality. (15)
72B*	There are too few gifted children to justify our offering special educational services to them. (19)

*Note 1:* Code = Item position in original pool (see Appendix A), followed by letter code of a priori thematic grouping membership, and identification of negative (\*) wording according to a general positive attitude.

*Note 2:* Here is a proposed sequence:

34B\* - 43F - 12E\* - 2A - 72B\* - 70F - 44C\* - 68C - 8C\* - 15F - 31K\* - 22H  
 83J\* - 73B\* - 45A - 11E\* - 6C - 10D\* - 75D - 5B\* - 89E - 51B\* - 39E - 48E\*